



**COW CREEK BAND OF UMPQUA TRIBE OF INDIANS  
GOVERNMENT OFFICES**

**2371 NE STEPHENS STREET, SUITE 100  
ROSEBURG, OR 97470-1399**

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**RECEIVED**

**JUL 25 2016**

July 22, 2016

**VIA CERTIFIED U.S. MAIL**

Regional Freedom of Information Officer  
U.S. EPA, Region 10  
Office of Ecosystems, Tribal and Public Affairs  
1200 6th Avenue ETPA-124  
Seattle, WA 98101

**Re: FREEDOM OF INFORMATION REQUEST**

Dear FOIA Officer:

The Cow Creek Band of Umpqua Tribe of Indians (the "Tribe") makes the following request pursuant to FOIA, 5 U.S.C. §§ 552 *et seq.*:

Subject Matters:

- The Coquille Indian Tribe's request (the "Fee to Trust Request") that the United States accept title to approximately 2.42 acres of land and improvements (the "Subject Property") located in the City of Medford, Oregon, adjacent to the northeastern boundary of Highway 99, between Charlotte Ann Lane and Lowry Lane, for gaming purposes. Reference is made to the enclosed May 9, 2016, letter from Christine B. Littleton, Manager, Environmental Review and Sediment Management Unit, EPA, Region 10, to Stanley Speaks, Northwest Regional Director, Bureau of Indian Affairs ("BIA"), whereby the EPA refers to "the proposed **Coquille Indian Tribe Fee-To-Trust and Casino Project** (EPA Project Number 15-0008-BIA)."

Time Frame:

- January 1, 2015, through July 22, 2016.

Material Scope:

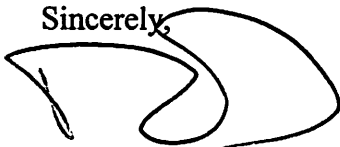
- Any and all information that relates to the Fee to Trust Request; the Subject Property, including any environmental contamination therein or thereon<sup>1</sup>; or the “proposed Coquille Indian Tribe Fee-To-Trust and Casino Project (EPA Project Number 15-0008-BIA)” as referenced in that May 9, 2016, letter.

The Tribe is willing to pay up to \$10,000.00 in applicable fees. If you are able to provide us with a cost estimate, we would appreciate it. For purposes of the fee classification category, the Tribe is “other.” The requested information is relevant because it concerns the Tribe’s existence, sovereignty, welfare, membership, history, ancestral lands, and governmental services including, without limitation, health care, education, and housing. The information requested herein is not readily available to the general public. Its release is likely to contribute significantly to the public’s understanding of BIA and EPA activity.

Any invoice for fees, including copying expenses, should be forwarded to the attention of Mr. Dirk Doyle, Attorney for the Tribe, at 2371 NE Stephens St., Ste. 100, Roseburg, Oregon 97470.

If you have any questions regarding this matter, please do not hesitate to contact me by telephone at 541-672-9405, by email at [ddoyle@cowcreek.com](mailto:ddoyle@cowcreek.com), or by mail at 2371 NE Stephens St., Ste. 100, Roseburg, Oregon 97470.

Sincerely,



Dirk Doyle,  
Tribal Attorney

cc w/encls.: Christine B. Littleton, Manager  
Environmental Review and Sediment Management Unit

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<sup>1</sup> Reference is made to a December 16, 2015, “DRAFT Supplemental Due Diligence,” which is on file with the BIA, which provides: “Analytical results for pesticides-related contamination identified the presence of metals and synthetic pesticides in the soils likely associated with historical orchard operations at the Site.”



**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY**  
**REGION 10**  
1200 Sixth Avenue, Suite 900  
Seattle, WA 98101-3140

OFFICE OF  
ECOSYSTEMS,  
TRIBAL AND PUBLIC  
AFFAIRS

May 9, 2016

Stanley Speaks  
Northwest Regional Director  
Bureau of Indian Affairs, Northwest Region  
911 Northeast 11th Avenue  
Portland, Oregon 97232

Dear Mr. Speaks:

In accordance with our responsibilities under Section 309 of the Clean Air Act, the National Environmental Policy Act, and the Council on Environmental Quality regulations for implementing NEPA, the U.S. Environmental Protection Agency has reviewed the Bureau of Indian Affairs' Administrative Draft Environmental Impact Statement for the proposed **Coquille Indian Tribe Fee-to-Trust and Casino Project** (EPA Project Number 15-0008-BIA) in the City of Medford, Jackson County, Oregon.

The Administrative DEIS evaluates potential environmental impacts associated with the Coquille Indian Tribe's proposed 2.4-acre fee-to-trust transfer and subsequent developments in the City of Medford. This action is needed to advance and promote tribal self-determination and sufficiency, and community development. Analysis of impacts from the proposed action considered five action alternatives (A-E), including a No Action (p. 2-1). Two of the four development Alternatives (A, B) would be built on Medford site (8.91 acres), while Alternative C and D would be built on Phoenix (49.34 acres) and Mill Casino (10.95 acres) sites, respectively. The DEIS identifies Alternative A as the BIA's Preferred Alternative. Under this Alternative, 2.4-acre parcel of the Medford site would be transferred from fee to trust status, the existing bowling alley would be retrofitted and remodeled into a 30,300-square-foot gaming facility with 650 gaming machines and other gaming support services, and the rest of the Medford Site would be used as parking space.

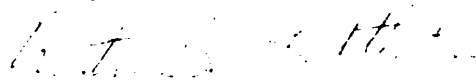
We believe that the Administrative DEIS provides adequate discussion of the potential environmental impacts and we have not identified any environmental impact requiring substantive changes. However, we would suggest that future EIS documents include the following:

- Updated information on the status of required approvals and permits for the project, particularly the National Pollutant Discharge Elimination System (NPDES) and related measures to protect water quality.
- Outcomes of Consultation under Section 106 of the National Historic Preservation Act.
- List and brief summary of all federal, state, and local laws, executive orders, directives, and regulations applicable to the project. Specifically, indicate how the project would implement the provisions of:

- Section 438 of the Energy Independence and Security Act that requires federal agencies reduce stormwater runoff from federal development projects to protect water resources
- Executive Order 13514, *Leadership in Environmental, Energy, and Economic Performance*, and 13693, *Planning for Federal Sustainability in the Next Decade*.
- Information on an environmental inspection and mitigation-monitoring program to ensure compliance with all mitigation measures and assess effectiveness. The NEPA documents should describe the program and its use as an effective feedback mechanism so that needed adjustments can be made to meet environmental objectives throughout the period of the project.

We appreciate the opportunity to review this DEIS. If you have question about our comments, please contact me at (206) 553-1601 or by electronic mail at [littleton.christine@epa.gov](mailto:littleton.christine@epa.gov), or you may contact Theo Mhabaliye of my staff at (206) 553-6322 or electronic mail at [mbabaliye.theogene@epa.gov](mailto:mbabaliye.theogene@epa.gov).

Sincerely,



Christine B. Littleton, Manager  
Environmental Review and Sediment Management Unit



Alpine Environmental Consultants, LLC  
12208 Antioch Road  
White City, Oregon 97503  
541.944.4685  
jwilliams@alpine-env-llc.com

December 16, 2015

Mr. Greg Aldridge, Executive Director, Development  
Coquille Economic Development Corporation  
3201 Tremont  
North Bend, Oregon 97459

RE: DRAFT Supplemental Due Diligence Orchards Investigation, 2375 South Pacific Highway,  
Medford, Oregon; Map 371W32C, Tax Lot 4701

Dear Mr. Aldridge,

As requested by the Coquille Economic Development Corporation (CEDCO), this letter report prepared by Alpine Environmental Consultants, LLC (AEC) documents the methods used to collect soils data and evaluates potential historical agricultural-related impacts to soil in support of a Supplemental Due Diligence Orchards Investigation (Supplemental Investigation). The Supplemental Investigation was carried out at the property addressed as 2375 South Pacific Highway in Medford, Oregon (hereinafter referred to as the Site). The Site consists of 2.42 acres and is identified as Tax Lot 4701 of Jackson County's Map 371W32C. The Site lies within Section 32 of Township 37 South, Range 1 West. This letter report is organized as follows:

- Executive Summary
- Background
- Supplemental Investigation Objectives
- Supplemental Investigation Field Activities
- Laboratory Analyses
- Data Evaluation
- Conclusions

## EXECUTIVE SUMMARY

In response to a specific request by the Coquille Economic Development Corporation (CEDCO), Alpine Environmental Consultants, LLC (AEC) conducted Site-specific soil testing on the Coquille Tribe's property on South Pacific Highway in Medford, Oregon. This Supplemental Due Diligence Orchards Investigation (Supplemental Investigation) supplements an initial Phase I Environmental Site Assessment (ESA) that found no recognized environmental conditions



associated with the Site. Because the Site was once part of a larger orchard, CEDCO requested the Supplemental Investigation to focus on potential soil impacts specific to the orchard industry. Soil samples were collected and submitted for laboratory analyses of pesticides-related contamination. Analytical results for pesticides-related contamination identified the presence of metals and synthetic pesticides in the soils likely associated with historical orchard operations at the Site. However, the concentrations of these residual pesticides-related constituents are consistent with what would be expected from the previous agricultural uses. Levels of metals and synthetic compounds in Site soils – the presence of which are the result of the region's agricultural history, and for metals, the volcanic and igneous rocks that helped form the Rogue Valley – are approximately equivalent to, or even lower than levels for orchards or historical orchard properties in the surrounding area, throughout the Rogue Valley, and throughout the Pacific Northwest.

Potential health risks for soil contaminants directly depend on how the property will be used and whether there is any complete pathway for human receptors to be exposed to soil contaminants. Currently, Site soils are covered by structures, pavement, and compacted non-native fill materials, which fully encapsulate the underlying native soil and strictly limits any exposure to soil contaminants. Plans for the Site will not change those conditions. The proposed Site use is fully consistent with its current and past uses as a bowling alley and restaurant and is equally consistent with surrounding properties that also were also historically operated as orchards and now accommodate a church, a large fruit and gift packing business, and multifamily housing.

## BACKGROUND

As we discussed in October 2015, research completed by AEC in support of the Supplemental Investigation indicated an orchard was present over the entire Site in 1952 (refer to **Figure 1**). An orchard was also present over the entire Site in an aerial photograph dated 1939, but the orchard was not present on the Site in an aerial photograph dated 1960. While AEC does not have any readily available data on historical orchard activities at the Site, it is reasonable to assume the orchard at the Site consisted of pears, and that the orchard may have been present at the Site since the early 1900s or potentially even earlier.

You provided AEC a copy of the Phase I Environmental Site Assessment (ESA) prepared by Geotechnical Resources, Inc. (GRI) of Beaverton, Oregon, that provided valuable background information and helped focus the Investigation. The Phase I ESA report prepared by GRI is dated May 24, 2012. Relevant findings of the GRI Phase I ESA report are that the Site was occupied by Roxy Ann Lanes (and is currently occupied by Roxy Ann Lanes), which reportedly started operations in 1959. While the GRI Phase I ESA report documented the presence of historical orchard operations at the Site between 1939 (i.e. the earliest historical aerial photograph) and at least 1956, their assessment "disclosed no evidence of recognized environmental conditions associated with the site."

Mr. Greg Aldridge  
December 16, 2015

Per our discussions in October 2015, AEC understands that based on their review of the GRI Phase I ESA report, CEDCO and affiliates believed the presence of historical orchard operations at the Site may have adversely impacted soil quality and decided to pursue supplemental due diligence investigation work to determine if there was any residual soil contamination associated with historical orchard activities that might pose unacceptable health risks.

As described in the Oregon Department of Environmental Quality's (DEQ's) Draft *Guidance for Evaluating Residual Pesticides on Lands Formerly Used for Agricultural Production* dated November 2005, (Agricultural Lands Guidance) pesticides can contain both metals (e.g. arsenic, lead) and synthetic organic compounds (e.g. DDT, chlordane), and some of these pesticides can accumulate in shallow soil and persist for long periods. AEC personnel have dealt with residual pesticides in shallow soils on a number of agricultural properties in Oregon, including in the Medford area.

For the purpose of this Supplemental Investigation report, the definition of a pesticide is consistent with that described in the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA), which is "any substance or mixture of substances intended for preventing, destroying, repelling, or mitigating any pest." This includes insecticides, fungicides, herbicides, rodenticides, miticides, molluscides, nematocides, and antimicrobials. As described in the aforementioned DEQ agricultural lands guidance document, metals-based pesticide use in fruit orchards has been prevalent since the late 1800s, and the use of synthetic organic pesticides started in the mid-1940s. Given the known operational period of the Site orchards (i.e. from 1939 and likely earlier through at least 1956) and given the absence of readily available Site-specific pesticide use data, it is reasonable to assume that both metals-based and synthetic organic pesticides could have been used at the Site.

The issue of pesticides associated with historical orchard operations having accumulated in shallow soil (defined as the upper 3 feet of soil) is of particular concern when historical agricultural properties are redeveloped for residential (or school) use. This is because DEQ's generic risk-based concentrations (RBCs) for compounds of potential concern (COPCs) are typically lower for residential (or school) exposure scenarios since DEQ assumes that residents, particularly children, will be more frequently exposed to COPCs in soil through ingestion, dermal contact, and inhalation. However, the issue of pesticide residuals having accumulated in shallow soil can sometimes be a concern when properties are redeveloped for commercial or industrial use (i.e. occupational use), especially if there is a complete pathway between the residual pesticide contamination and potential receptors. Additional information regarding DEQ's RBCs can be found in DEQ's *Risk-Based Decision Making for the Remediation of Petroleum-Contaminated Sites* guidance document dated September 2003.

The Site is currently in commercial use as the Roxy Ann Lanes bowling alley. As illustrated on **Figure 2**, approximately 90 percent of the Site is currently paved with asphalt or occupied by Site structures. A narrow strip of property on the northeaster portion of the Site, distal to the primary Site commercial building, is currently unpaved but covered with 1.2 feet of compacted non-native fill (gravel). Given that approximately 90 percent of the Site is currently paved with

asphalt or occupied by Site structures, it is unlikely the potential presence of residual pesticides associated with historical orchard use at the Site would pose unacceptable risks to current users (i.e. occupational workers) because workers are unlikely to contact soil beneath buildings and pavement (i.e. there is no complete pathway of exposure over the Site). In the narrow unpaved strip of property on the northeastern portion of the Site, approximately 1.2 feet of compacted gravel with cobbles (i.e. non-native fill) overlies the native soil. The presence of this relatively thick gravel layer acts as a barrier between occupational workers and the underlying native soil.

Regardless, AEC understands that CEDCO's concerns about potential health risks associated with worker exposure to shallow soil that may have been impacted by historical orchard activities are technically appropriate, and warranted supplemental due diligence investigation.

### **SUPPLEMENTAL INVESTIGATION OBJECTIVES**

Based on these warranted concerns, AEC completed the Investigation to meet the following objectives:

- Determine whether shallow soil at the Site has been impacted by residual pesticide contamination associated with historical orchard operations.
- If shallow soil was impacted by residual pesticide contamination, compare these analytical results to potentially applicable generic RBCs for both current and reasonably likely future Site uses and evaluate whether there are any complete exposure pathways posing unacceptable health risks for occupational workers in the present or proposed future use.

### **SUPPLEMENTAL INVESTIGATION FIELD ACTIVITIES**

On October 22, 2015, Mr. Jonathan Williams of AEC supervised the excavation of two test pits on the Site using a small excavator. The small excavator was operated by Mr. Todd Marthoski of M&M Services, LLC of Medford, Oregon. Prior to any subsurface disturbances associated with excavating and sampling test pits, AEC contacted the Utility Notification Center in order to locate and trace any potential public ungrounded infrastructure of pipes, mains, and utility lines that may be present in the vicinity of the proposed test pits. No public underground utilities were identified in the area of investigation. AEC also scheduled the use of a private locator to identify any private underground pipes, mains, or utility lines that may have been present in the vicinity of the test pit locations. However, given the absence of any visible storm drains or pipes, electrical conduits, or other underground utilities proximal to the test pit locations, a private locator was not needed.

The two test pit locations are illustrated on **Figure 2**. At both test pit locations (TP-1 and TP-2), approximately 1.2 feet of compacted, dry, and poorly sorted gravel and rounded cobbles (i.e. bar run gravel) were observed overlying the native soil. The sampling objective at each test pit was to collect two discrete soil samples representing the uppermost 1 foot of soil and the



underlying interval of 1.0 to 3.0 feet of native soil. Given the presence of approximately 1.2 feet of overlying non-native fill at both test pit locations, both test pits were excavated to a depth of approximately 4.5 feet. During excavation activities at both test pits, the overlying compacted gravel was segregated from the underlying soil. This approach was taken so that at the conclusion of sampling activities, the test pits could be backfilled and compacted first with native soil, then backfilled and compacted using the overlying fill.

The rationale for collecting two discrete soil samples at each test pit location was that depth discrete analytical results might help characterize the vertical extent of potential pesticide contamination. The concept of depth discrete samples is also documented in the aforementioned DEQ Agricultural Lands Guidance of 2005. While this guidance suggests the "surface" sample consist of the upper 6 inches of soil, the shallower soil samples collected by AEC consisted of the upper 1 foot of native soil (i.e. 0.0 to 1.0 feet below the fill contact [bfc]) because it was unknown if shallower native or non-native soil had been graded prior to Site development in approximately 1959. The collection of four discrete soil samples from two test pit locations is consistent with the default sampling density for commercial/industrial redevelopment sites identified in the DEQ Agricultural Lands Guidance of 2005, which calls for one to seven discrete soil samples on properties where the size of single-crop area is 1 to 7 acres.

After the two test pits had been excavated, AEC personnel collected two depth discrete soil samples over the desired depth intervals from each test pit using clean stainless steel trowels and clean stainless steel bowls. Before and between the excavation of each test pit, the small excavator bucket was cleansed using an Alconox solution and rinsed with de-ionized water. The stainless steel trowels and stainless steel bowls were also cleansed prior to each use by scrubbing with a brush and an Alconox solution and rinsed with de-ionized water.

Soil samples representative of the native soil from depths of 0.0 to 1.0 feet bfc and 1.0 to 3.0 feet bfc were collected by scraping an equal and representative volume of soil off of the test pit walls over the desired depth intervals to fill the stainless steel bowls. The soil in the stainless steel bowls was then thoroughly homogenized using the stainless steel trowels to develop representative depth discrete soil samples. After the soil in the stainless steel bowls had been thoroughly homogenized, soil was transferred directly from the stainless steel bowls into laboratory-supplied glass jars using the stainless steel trowels. Accordingly, a total of four discrete soil samples were collected (i.e. two samples from each of the two test pits). After soil sample collection has been completed, the test pits were backfilled and compacted using the small excavator as described above.

AEC personnel were prepared to remove larger sized material (i.e., gravel greater than approximately ¼ to ½ inch in diameter) by hand. However, the encountered soils consisted of brown, damp, silty clay loams and no coarse material was identified. These soil observations made by AEC personnel are consistent with soil mapping completed by the U.S. Department of Agriculture's (USDA) Soil Conservation Service (SCS) which identifies soils proximal to the two test pit locations as the Gregory silty clay loam and/or the Medford silty clay loam.

The four soil samples were placed in an iced cooler and shipped via Federal Express to Apex Labs (APEX) of Tigard, Oregon, using AEC's standard chain-of-custody protocol. APEX is an Oregon-accredited analytical laboratory.

## LABORATORY ANALYSES

As discussed previously, all four soil samples were submitted to APEX. In order to constrain analytical costs, only the two shallower soil samples representing 0 to 1 foot bfc were analyzed initially, with the two deeper soil samples representing 1 to 3 feet bfc being archived at the analytical laboratory. Should pesticide-related analytes be detected at concentrations greater than Site-specific generic RBCs (i.e. occupational use) in the shallower samples, then the corresponding deeper soil samples at those locations would also be analyzed for those analytes for which the RBCs were exceeded in the shallow soil sample/s.

To be consistent with the DEQ Agricultural Lands Guidance of 2005, the two shallower soil samples from the two test pit locations were analyzed for the following pesticides analytes on a standard 10-day turnaround time:

- Seventeen metals by U.S. Environmental Protection Agency (USEPA) Method 6020. These 17 metals include the following: antimony, arsenic, barium, beryllium, cadmium, chromium, cobalt, copper, lead, nickel, mercury, molybdenum, selenium, silver, thallium, vanadium, and zinc.
- Organochlorine Pesticides by USEPA Method 8081B, including the following: aldrin; alpha-BHC; beta-BHC; delta-BHC; gamma-BHC (lindane); gamma-Chlordane; alpha-Chlordane; Chlordane (tech); 4,4-DDD; 4,4-DDE; 4,4-DDT; Dieldrin; Endosulfan I; Endosulfan II; Endosulfan sulfate; Endrin; Endrin aldehyde; Endrin ketone; Heptachlor; Heptachlor epoxide; Methoxychlor; and Toxaphene.
- Chlorinated herbicides by USEPA Method 8151A, including the following: 2,4-D; 2,4-DB; 2,4,5-T; 2,4,5-TP (Silvex); Dalapon; Dicamba; Dichloroprop; Dinoseb; MCPA; and MCPP. APEX subcontracted the chlorinated herbicides analyses to Weck Laboratories, Inc., another Oregon-accredited laboratory.
- Organophosphate pesticides by USEPA Method 8141A, including the following: Azinphos methyl; Bolstar; Chlorpyrifos; Coumaphos; Demeton; Diazinon; Dichlorovs; Dimethoate; Disulfoton; Ethoprop; Fensulfothion; Ronnel; Stirophos; Tokuthion; and Trichloronate. Apex subcontracted the organophosphate pesticides analyses to Weck Laboratories, Inc.

The DEQ Agricultural Lands Guidance of 2005 recommends a matrix spike/matrix spike duplicate (MS/MSD) sample be submitted for analysis with each batch of samples. The objective of running the MS/MSD quality control (QC) sample is to demonstrate that targeted pesticides can be recovered from the investigated soil. AEC collected additional sample volume for the shallower soil sample collected from Test Pit 1 (TP1-0-1) to accommodate running MS/MSD QC analyses, which were completed by APEX and the subcontracted laboratory (Weck

Laboratories, Inc.). While some matrix interferences were identified, resulting in elevated laboratory method reporting limits for some analytes, the analytical results were deemed valid by the laboratories.

Based on the initial analytical results for the shallower soil samples collected from Test Pit 1 and Test Pit 2, both the total arsenic and total lead results exceeded generic RBCs for occupational workers. Accordingly, AEC requested that the deeper soil samples archived at APEX also be analyzed for total arsenic and total lead. Analytical results for total metals, organochlorine pesticides, chlorinated herbicides, and organophosphorus pesticides are presented in **Tables 1, 2, 3, and 4**, respectively. In addition to presenting the analytical results, **Tables 1 through 4** also identify the generic DEQ RBCs for soil. The generic RBCs identified in these tables are consistent with the current commercial land use and zoning, and assume occupational workers will be present on the site. These generic RBCs for occupational workers are also consistent with the anticipated future use of the Site.

## DATA EVALUATION

The analytical results for total metals, organochlorine pesticides, chlorinated herbicides, and organophosphorus pesticides indicate that concentrations of only two analytes exceeded generic RBCs for occupational workers. These two analytes consisted of total arsenic and total lead (see **Table 1**). While there were some relatively low level detections of organochlorine pesticides in the shallower soil samples suggesting organochlorine pesticides may have been used during historical orchard operations, none of the constituents detected exceeded any generic RBCs for occupational use (see **Table 2**). There were no detections of chlorinated herbicides or organophosphorus pesticides, and the laboratory method reporting limits were all below the applicable generic RBCs for occupational workers (see **Tables 3 and 4**).

As discussed in the preceding paragraph, the only two analytes exceeding generic RBCs for occupational workers at the Site are total arsenic and total lead. The following discussion compares the total arsenic and total lead results to generic RBCs for occupational uses and presents an abbreviated conceptual site model describing why these metals concentrations do not pose an unacceptable risk to occupational receptors at the Site under current or future anticipated conditions.

**TOTAL ARSENIC** - Total arsenic was detected in the shallower soil sample at Test Pit 1 at 27.7 milligrams per kilogram (mg/kg; approximately equivalent to parts per million) and in the shallower soil sample at Test Pit 2 at 33.1 mg/kg. These total arsenic concentrations exceed the generic RBC for occupational workers under the *soil ingestion, dermal contact, and inhalation pathway* of 1.9 mg/kg, as well as the generic RBC for construction workers of 15 mg/kg. Significant attenuation of total arsenic concentrations with soil depth were observed, with the total arsenic concentrations of the deeper soil samples for Test Pits 1 and 2 being 4.98 mg/kg and 7.32 mg/kg, respectively. The total arsenic concentrations for the two deeper soil samples are still above the generic RBC for occupational workers under the *soil ingestion, dermal*



contact, and inhalation pathway of 1.9 mg/kg, but below the generic RBC for construction workers of 15 mg/kg.

Arsenic, lead, and many other metals are naturally occurring in Oregon rocks and subsequently derived soils given Oregon's geologic province (i.e. volcanic and intrusive igneous rocks where metal-bearing sulfide minerals are prevalent). Therefore, an additional column documenting naturally occurring background concentrations of metals in Oregon is included in **Table 1**. These naturally occurring background metals concentrations data were derived from DEQ's Technical Report entitled *Development of Oregon Background Metals Concentrations in Soil*, dated March 2013. The background metals concentrations data in soil referenced in **Table 1** represent the 95 percent upper prediction limit for the Klamath Mountains region, which is the region in which the Site is located.

The total arsenic background concentration in soils for the Klamath Region is 12.490 mg/kg. It should be noted that this total arsenic background concentration in soil for the Klamath Region is approximately six times higher than the generic RBC for occupational workers under the soil ingestion, dermal contact, and inhalation pathway of 1.9 mg/kg. The total arsenic concentrations in the two shallower soil samples collected from Test Pit 1 (27.7 mg/kg) and Test Pit 2 (35.1 mg/kg) exceed this regional background concentration, suggesting pesticides containing arsenic were applied during historical orchard operations. However, the total arsenic concentrations for the deeper soil samples from Test Pit 1 (4.98 mg/kg) and Test Pit 2 (7.32 mg/kg) are below the regional background concentration of 12.490 mg/kg. This indicates that total arsenic concentrations attenuated significantly with depth to well below the regional background concentration and soils at depths greater than 1 foot bfc have not been impacted by total arsenic associated with historical orchard operations pesticide use.

The generic occupational RBC for total arsenic of 1.9 mg/kg under the soil ingestion, dermal contact, and inhalation pathway conservatively assumes that occupational workers at the Site could be exposed to soils. However, given that approximately 90 percent of the Site is paved or occupied by the single Site structure, and the remaining unpaved portion of the Site is covered by approximately 1.2 feet of compacted non-native fill (poorly sorted gravel and cobbles), it is not reasonable to assume that occupational workers at the Site would be exposed to shallow soil in a manner that would exceed unacceptable risks. While the generic RBC for total arsenic for construction workers of 15 mg/kg was exceeded in the shallower soil samples, this risk could be easily mitigated with proper communication to future construction workers requiring they wear appropriate personal protective equipment (PPE) and follow proper decontamination procedures subsequent to working. In discussions with CEDCO, AEC understands the property will continue to support commercial uses. Accordingly, there is no reason to believe that future occupational workers would be exposed to total arsenic in shallow soil that would generate unacceptable health risks.

**TOTAL LEAD** - Total lead was detected in the shallower soil sample at Test Pit 1 at 80.4 mg/kg and in the shallower soil sample at Test Pit 2 at 119 mg/kg. These total lead concentrations exceed the generic RBC for occupational workers under the leaching to groundwater pathway



of 15 mg/kg. Significant attenuation of total lead concentrations with soil depth were observed, with the total lead concentrations of the deeper soil samples for Test Pits 1 and 2 being 5.80 mg/kg and 6.87 mg/kg, respectively. The total lead concentrations for the two deeper soil samples are below the RBC for occupational workers under the leaching to groundwater pathway of 15 mg/kg.

The total lead background concentration in soils for the Klamath Region is 35.560 mg/kg. The total lead concentrations in the two shallower soil samples collected from Test Pit 1 (80.4 mg/kg) and Test Pit 2 (119 mg/kg) exceed this regional background concentration, suggesting pesticides containing lead were applied during historical orchard operations. However, the total lead concentrations for the deeper soil samples from Test Pit 1 (5.80 mg/kg) and Test Pit 2 (6.87 mg/kg) are below the regional background concentration of 35.560 mg/kg. This indicates that total lead concentrations attenuated significantly with depth to well below the regional background concentration and soils at depths greater than 1 foot bfc have not been impacted by total lead associated with historical orchard operations pesticide use.

The generic occupational RBC for the leaching to groundwater pathway conservatively assumes that a water supply well is being used at the Site or proximal to the Site, and that lead could be leached from the shallow soil, impact groundwater, and that occupational workers could subsequently be exposed to lead in drinking water. However, the Site and neighboring properties are serviced with municipal water from the Medford Water Commission. Furthermore, a review of the Oregon Water Resources Department (WRD) well records does not indicate the Site or neighboring properties have any water supply wells. It is reasonable and likely that the Site and neighboring properties will continue to utilize municipal water in the future; therefore, given the absence of wells and significant attenuation with soil depth, it is highly unlikely that the total lead in shallow soil at the Site will pose an unacceptable risk to occupational workers at the Site.

## CONCLUSIONS

AEC completed this Supplemental Investigation of shallow soils at the Site to meet the following objectives:

- Determine whether shallow soil at the Site has been impacted by residual pesticide contamination associated with historical orchard operations.
- If shallow soil was impacted by residual pesticide contamination, compare these analytical results to potentially applicable generic RBCs for both current and reasonably likely future Site uses and evaluate whether there are any complete exposure pathways posing unacceptable health risks for occupational workers in the present or proposed future use.

In support of the Supplemental Investigation, two test pits were excavated at the Site. Two composite soil samples were collected from each test pit representing the intervals 0.0 to 1.0 feet bfc and 1.0 to 3.0 feet bfc. The two shallower soil samples were submitted for the

following analyses: total metals, organochlorine pesticides, chlorinated herbicides, and organophosphorus pesticides. In addition, the two deeper composite soil samples were submitted for total arsenic and total lead analyses. Analytical results for total metals, organochlorine pesticides, chlorinated herbicides, and organophosphorus pesticides are presented in **Tables 1, 2, 3, and 4**, respectively.

The analytical results for total metals, organochlorine pesticides, chlorinated herbicides, and organophosphorus pesticides indicate that only two analytes exceeded generic RBCs for occupational workers. These two analytes consisted of total arsenic and total lead, as documented in **Table 1**. While there were some relatively low level detections of organochlorine pesticides in the shallower soil samples suggesting organochlorine pesticides may have been used during historical orchard operations, none of the constituents detected exceeded any generic RBCs for occupational use (see **Table 2**). There were no detections of chlorinated herbicides or organophosphorus pesticides, and the laboratory method reporting limits were all below the applicable generic RBCs for occupational workers (see **Tables 3 and 4**).

While the shallow soil sample analytical results for total arsenic and total lead exceed generic RBCs for occupational workers, it is unlikely these exceedances of generic RBCs pose an unacceptable risk to occupational workers at the Site for the following reasons:

- **Potential health risks for total arsenic** at the Site are associated with the soil ingestion, dermal contact, and inhalation pathway, which conservatively assumes occupational workers at the Site could be exposed to soils. However, given that approximately 90 percent of the Site is paved or occupied by the single Site structure, and the remaining unpaved portion of the Site is covered by approximately 1.2 feet of non-native compacted fill (poorly sorted gravel and cobbles), it is not reasonable to assume that occupational workers at the Site would be exposed to shallow soil in a manner that would exceed unacceptable risks. Furthermore, based on discussions with CEDCO, AEC understands there are no plans to change the commercial use of the property in the future. Accordingly, there is no reason to believe that future occupational workers would be exposed to total arsenic in shallow soil that would generate unacceptable health risks.
- **Potential health risks for total lead** at the Site are associated with the leaching to groundwater pathway, which conservatively assumes that a water supply well is being used at the Site or proximal to the Site, and that lead could be leached from the shallow soil, impact groundwater, and that occupational workers could subsequently be exposed to lead in drinking water. However, the Site and neighboring properties are serviced with municipal water from the Medford Water Commission. Furthermore, a review of the WRD well records does not indicate the Site or neighboring properties have any water supply wells. It is reasonable and likely that the Site and neighboring properties will continue to utilize municipal water in the future; therefore, it is unlikely that the total lead in shallow soil at the Site will pose an unacceptable risk to occupational workers at the Site.



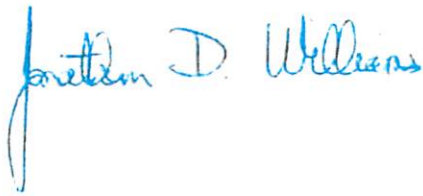
Mr. Greg Aldridge  
December 16, 2015

It should be noted that based on AEC's experience working with properties in the Medford area that had historical orchard operations and have been redeveloped for commercial or industrial uses, the total arsenic and total lead concentrations detected in shallow soils at the Site are not unexpected and approximately equivalent to or even lower than the total arsenic and total lead concentrations detected in shallow soils at similar properties in the Rogue Valley.

Please feel free to contact me at 541-944-4685 or [jwilliams@alpine-enc-llc.com](mailto:jwilliams@alpine-enc-llc.com) if you have any questions about our proposal.

Sincerely,

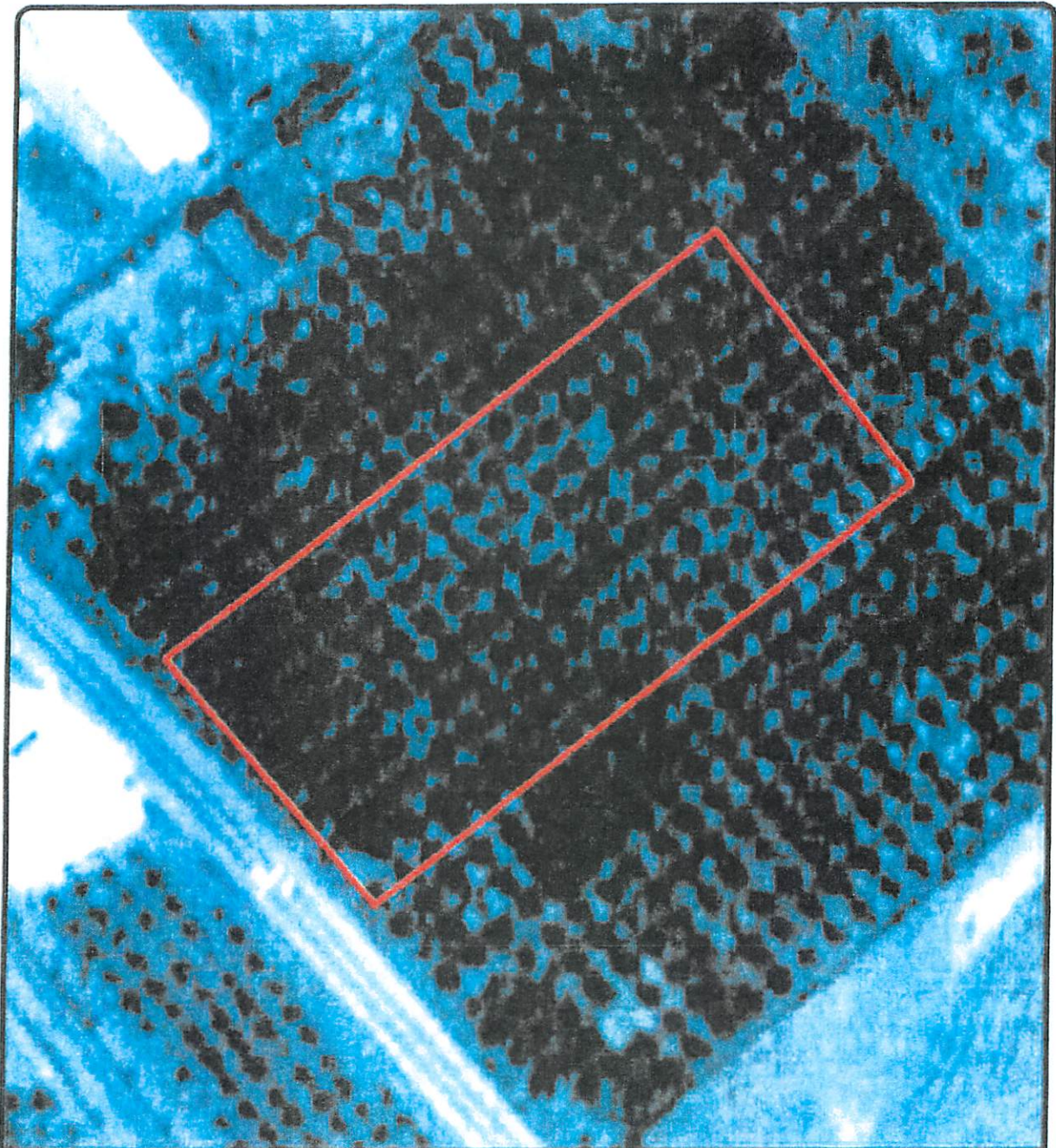
**Alpine Environmental Consultants, LLC**



Jonathan D. Williams, RG  
Senior Hydrogeologist, Principal

**Attachments:**

- Figure 1 – 1952 Historical Aerial Photograph
- Figure 2 – Test Pit Locations
- Table 1 – Soil Samples Analytical Results, Total Metals
- Table 2 – Soil Samples Analytical Results, Organochlorine Pesticides
- Table 3 – Soil Samples Analytical Results, Chlorinated Herbicides
- Table 4 – Soil Samples Analytical Results, Organophosphorus Pesticides
- Limitations

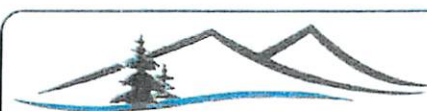


SOURCE: UNIVERSITY OF OREGON MAP LIBRARY

#### LEGEND

 = Approximate Site Boundary

SCALE  
0 100 200 FEET



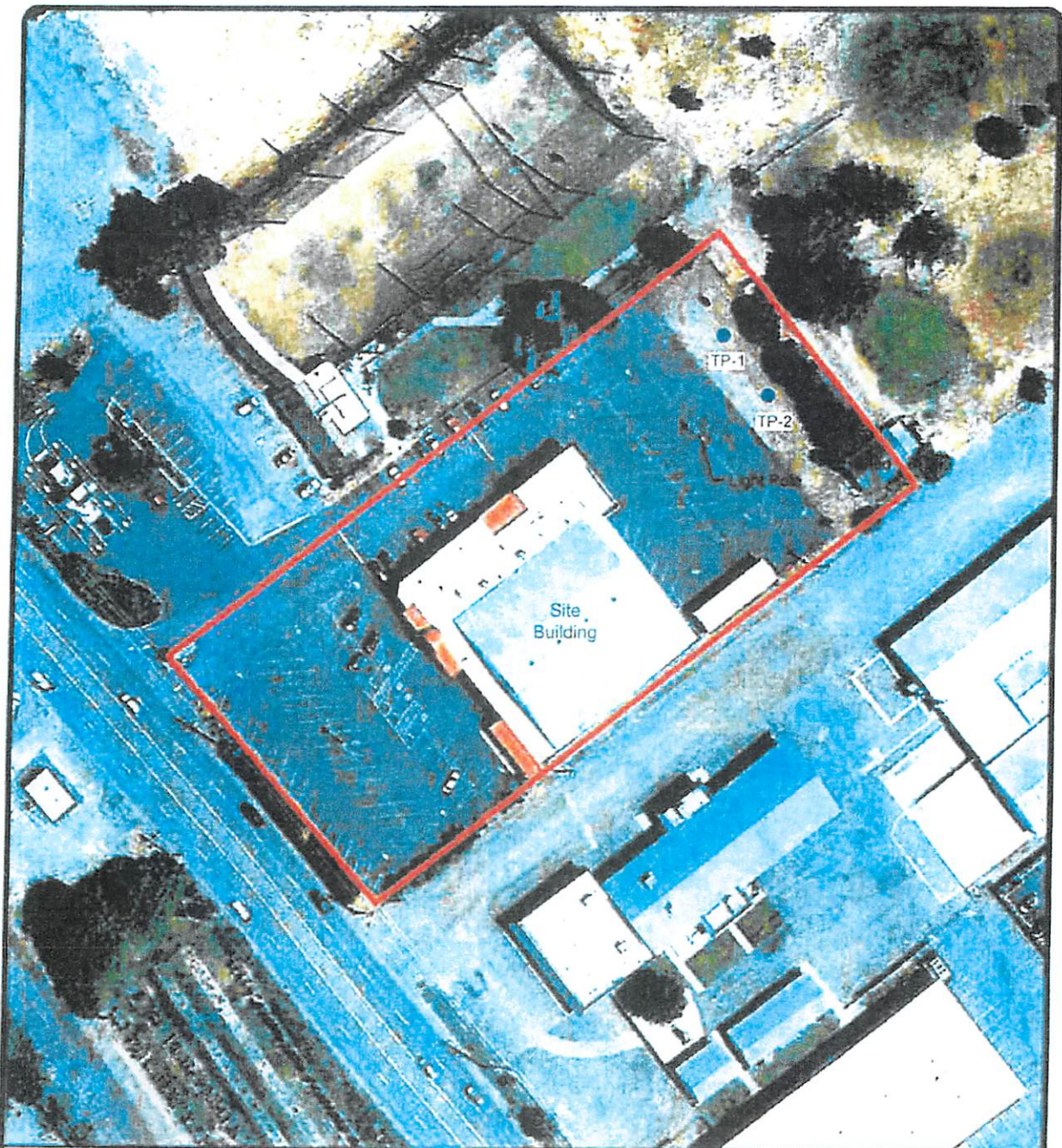
ALPINE ENVIRONMENTAL CONSULTANTS, LLC

DATE 12/14/15

BY: SRM

Figure 1  
1952 Historical Aerial Photograph  
Supplemental Due Diligence Orchards Investigation  
Coquille Economic Development Corporation  
2375 South Pacific Highway, Medford, Oregon

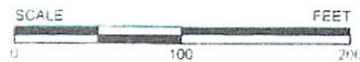




SOURCE: GOOGLE EARTH (2015)

#### LEGEND

- Approximate Site Boundary
- TP-1 ● Test Pit and Soil Sampling Location



ALPINE ENVIRONMENTAL CONSULTANTS, LLC

DATE 12/14/15

DRAWN BY SRM

Figure 2  
Test Pit Soil Sampling Locations  
Supplemental Due Diligence Orchards Investigation  
Coquille Economic Development Corporation  
2375 South Pacific Highway, Medford, Oregon



**DRAFT Table 1**  
**Soil Samples Analytical Results - Total Metals**  
**Supplemental Due Diligence Orchards Investigation**  
**2375 South Pacific Highway, Medford, Oregon**  
**Coquille Economic Development Corporation**

Parameter	DEQ Risk-Based Concentrations for Soil (a)						DEQ's Background Concentrations in Soil (e)	Test Pit Soil Samples			
	Ingestion, Dermal Contact and Inhalation (b)			Volatilization to Outdoor Air (c)	Vapor Intrusion into Buildings	Leaching to Groundwater (d)		TP1-0-1 Northwest (0-1 ft bfc)	TP1-1-3 Northwest (1-3 ft bfc)	TP2-0-1 Southeast (0-1 ft bfc)	TP2-1-3 Southeast (1-3 ft bfc)
	Occupational	Construction Worker	Excavation Worker	Occupational	Occupational	Occupational		10/22/2015	10/22/2015	10/22/2015	10/22/2015
<b>TOTAL METALS (mg/Kg)</b> <b>USEPA 6010/6020</b>											
Antimony	No RBCs	No RBCs	No RBCs	No RBCs	No RBCs	No RBCs	0.587	1.22U	NA	1.21U	NA
Arsenic	1.9	15	420	NV	NV	-	12.490	27.7	4.98	33.1	7.32
Barium	220,000	69,000	>Max	NV	NV	-	632.0	185	NA	200	NA
Beryllium	2,300	700	19,000	NV	NV	-	1.397	0.510	NA	0.496	NA
Cadmium	1100	350	9,700	NV	NV	-	0.515	-	NA	0.241U	NA
Chromium (III)	>Max	530,000	>Max	-	NV	-	894.0	45.6	NA	60.0	NA
Cobalt	No RBCs	No RBCs	No RBCs	No RBCs	No RBCs	No RBCs	No Value	17.8	NA	17.1	NA
Copper	47,000	14,000	390,000	NV	NV	-	108.50	63.8	NA	65.0	NA
Lead	800	800	800	NV	NV	15	35,560	80.4	5.80	118	6.87
Mercury	350	110	2,900	NV	NV	-	0.166	0.095U	NA	0.0965U	NA
Molybdenum	No RBCs	No RBCs	No RBCs	No RBCs	No RBCs	No RBCs	No Value	1.22U	NA	1.21U	NA
Nickel	22,000	7,000	190,000	NV	NV	-	634.40	32.4	NA	34.8	NA
Selenium	No RBCs	No RBCs	No RBCs	No RBCs	No RBCs	No RBCs	0.799	2.43	NA	2.41U	NA
Silver	5,800	1,800	49,000	NV	NV	-	0.159	0.243U	NA	0.241U	NA
Thallium	No RBCs	No RBCs	No RBCs	No RBCs	No RBCs	No RBCs	0.305	0.243U	NA	0.241U	NA
Vanadium	No RBCs	No RBCs	No RBCs	No RBCs	No RBCs	No RBCs	266.0	61.0	NA	64.1	NA
Zinc	No RBCs	No RBCs	No RBCs	No RBCs	No RBCs	No RBCs	139.0	66.8	NA	69.4	NA

**Notes:**

Analytical data in bold font indicates that the value exceeds the laboratory method reporting limits.

Analytical data or DEQ background concentrations data highlighted in yellow indicates the value exceeded a generic RBC.

**Data Qualifiers:**

U - The analyte was analyzed for, but was not detected above the analytical laboratory's method reporting limit.

**Footnotes:**

(a) Risk-Based Concentrations are referenced from the November 1, 2015 update to the DEQ's Risk-Based Decision Making for the Remediation of Petroleum-Contaminated Sites guidance document dated September 2003.

(b) This pathway is applicable anytime someone is likely to come into contact with contaminated soil. For the occupational scenario, exposure to contaminated soils should be considered for all contaminants found in the top three feet of soil.

(c) This pathway is applicable whenever vadose zone soils are contaminated with volatile compounds.

(d) This pathway is applicable whenever vadose zone contamination is found overlying an aquifer that is currently used or is reasonably likely to be used in the future.

(e) DEQ's Background Concentrations in Soil are referenced from the DEQ's Development of Oregon Background Metals Concentrations in Soil technical report dated March 2013. The background concentrations included in this table are 95% Upper Prediction Limit (UPL) for the Klamath Mountains region, which includes Medford area.

**Symbols/Acronyms:**

bfc - below fill contact

DEQ - Department of Environmental Quality

NA - Sample was not analyzed for this analyte.

NV - The chemical is considered "nonvolatile" for the purposes of the exposure calculations.

RBC - risk-based concentration

>Csat - This RBC exceeds the limit of three phase equilibrium partitioning. Soil concentrations in excess of Csat indicate that free product might be present.

>Max - The constituent RBC for this pathway is greater than 1,000,000 mg/Kg or 1,000,000 mg/L. Therefore, these substances are not expected to pose risks in the scenario shown.

>S - This groundwater RBC exceeds the solubility limit. Groundwater concentrations in excess of S indicate that free product may be present.

**DRAFT Table 2**  
**Soil Samples Analytical Results - Organochlorine Pesticides**  
**Supplemental Due Diligence Orchards Investigation**  
**2375 South Pacific Highway, Medford, Oregon**  
**Coquille Economic Development Corporation**

Parameter	DEQ Risk-Based Concentrations for Soils (a)						Test Pit Soil Samples	
	Ingestion, Dermal Contact and Inhalation (b)			Volatilization to Outdoor Air (c)	Vapor Intrusion into Buildings	Leaching to Groundwater (d)	TP1-0-1 Northwest (0-1 ft b/c)	TP2-0-1 Southeast (0-1 ft b/c)
	Occupational	Construction Worker	Excavation Worker	Occupational	Occupational	Occupational	10/22/2015	10/22/2015
<b>Organochlorine Pesticides (mg/Kg)</b>								
<b>USEPA 8081B</b>							C-05	C-05
Aldrin	0.13	1.1	30	>Csat	>Csat	0.1	0.00233U	0.00219U
alpha-hexachlorocyclohexane (alpha-BHC)	0.36	3	83	NV	NV	0.023	0.00233U	0.00219U
beta-BHC	No RBCs	No RBCs	No RBCs	No RBCs	No RBCs	No RBCs	0.00233U	0.00219U
delta-BHC	No RBCs	No RBCs	No RBCs	No RBCs	No RBCs	No RBCs	0.00233U	0.00219U
gamma-BHC (Lindane)	2.1	17	470	NV	NV	0.13	0.00233U	0.00219U
cis-Chlordane (Chlordane RBCs)	7.4	61	1700	>Csat	>Csat	2.1	0.00233U	0.00219U
trans-Chlordane (Chlordane RBCs)	7.4	61	1700	>Csat	>Csat	2.1	0.00233U	0.00219U
4,4'-Dichlorodiphenyldichloroethane (4,4'-DDD)	17	94	2,600	NV	NV	2.6	0.00794	0.00872
4,4'-Dichlorodiphenyldichloroethene (4,4'-DDE)	8.2	66	1,800	>Csat	>Csat	7.5	0.178	0.208
4,4'-Dichlorodiphenyltrichloroethane (4,4'-DDT)	5.5	56	1,800	NV	NV	70	0.107 Q-42	0.114
Dieldrin	0.14	1.2	33	NV	NV	0.03	0.00433	0.00755
Endosulfan I (Endosulfan alpha-beta RBC)	4900	1600	45,000	>Max	>Max	>Csat	0.00233U	0.00219U
Endosulfan II (Endosulfan alpha-beta RBC)	4900	1600	45,000	>Max	>Max	>Csat	0.00233U	0.00219U
Endosulfan Sulfate (Endosulfan alpha-beta RBC)	4900	1600	45,000	>Max	>Max	>Csat	0.00233U	0.00219U
Endrin	250	80	2200	NV	NV	>Csat	0.00233U	0.00219U
Endrin Aldehyde (Endrin RBC)	250	80	2200	NV	NV	>Csat	0.00233U	0.00219U
Endrin Ketone (Endrin RBC)	250	80	2200	NV	NV	>Csat	0.00233U	0.00219U
Heptachlor	4.5	4	110	230	230	0.048	0.00233U	0.00219U
Heptachlor epoxide	0.24	-	50	>Csat	>Csat	0.16	0.00233U	0.00219U
Methoxychlor	No RBCs	No RBCs	No RBCs	No RBCs	No RBCs	No RBCs	0.00658U	0.00658U
Chlordane (Technical)	7.4	61	1700	>Csat	>Csat	2.1	0.0698U	0.0658U
Toxaphene (Total)	1	17	470	NV	NV	0.093	0.00433U	0.0658U

**Notes:**

Analytical data in bold font indicates that the value exceeds the laboratory reporting limits.

Analytical data highlighted in yellow indicates the value exceeded a generic RBC

**Data Qualifiers:**

U - The analyte was analyzed for but was not detected above the analytical laboratory's method reporting limit

C-05 - Extract has undergone a GPC (Gel-Permeation Chromatography) cleanup per EPA 3640A. Reporting levels may be raised due to dilution necessary for cleanup. Sample Final Volume includes the GPC dilution factor. See the Prep page for details.

Q-42 - Matrix Spike and/or Duplicate analysis was performed on this sample. % Recovery or RPD for this analyte is outside laboratory control limits. (Refer to the QC Section of Analytical Report.)

**Footnotes:**

(a) Risk-Based Concentrations are referenced from the November 1, 2015 update to the DEQ's Risk-Based Decision Making for the Remediation of Petroleum-Contaminated Sites guidance document dated September 2003.

(b) This pathway is applicable anytime someone is likely to come into contact with contaminated soil. For the occupational scenario, exposure to contaminated soils should be considered for all contaminants found in the top three feet of soil.

(c) This pathway is applicable whenever vadose zone soils are contaminated with volatile compounds.

(d) This pathway is applicable whenever vadose zone contamination is found overlying an aquifer that is currently used or is reasonably likely to be used in the future.

**Symbols/Acronyms:**

b/c - below fill contact

DEQ - Department of Environmental Quality

NV - The chemical is considered "nonvolatile" for the purposes of the exposure calculations.

RBC - risk-based concentration

>Csat - This RBC exceeds the limit of three phase equilibrium partitioning. Soil concentrations in excess of Csat indicate that free product might be present.

>Max - The constituent RBC for this pathway is greater than 1,000,000 mg/kg or 1,000,000 mg/L. Therefore, these substances are not expected to pose risks in the scenario shown.

>S - This groundwater RBC exceeds the solubility limit. Groundwater concentrations in excess of S indicate that free product may be present.

**DRAFT Table 3**  
**Soil Samples Analytical Results - Chlorinated Herbicides**  
**Supplemental Due Dilligence Orchards Investigation**  
**2375 South Pacific Highway, Medford, Oregon**  
**Coquille Economic Development Corporation**

Parameter	DEQ Risk-Based Concentrations for Soils (a)						Test Pit Soil Samples	
	Ingestion, Dermal Contact and Inhalation (b)			Volatilization to Outdoor Air (c)	Vapor Intrusion into Buildings	Leaching to Groundwater (d)	TP1-0-1 Northwest (0-1 ft bfc)	TP2-0-1 Southeast (0-1 ft bfc)
	Occupational	Construction Worker	Excavation Worker	Occupational	Occupational	Occupational	10/22/2015	10/22/2015
<b>Chlorinated Herbicides (mg/Kg)</b>								
<b>USEPA 8151A</b>								
2,4-Dichlorophenoxyacetic acid (2,4-D)	8,200	2,700	74,000	NV	NV	16	0.43U M-02	0.43U M-02
4-(2,4-dichlorophenoxy)butyric acid (2,4-DB)	No RBCs	No RBCs	No RBCs	No RBCs	No RBCs	No RBCs	0.43U M-02	0.43U M-02
2,4,5-Trichlorophenoxyacetic acid (2,4,5-T)	No RBCs	No RBCs	No RBCs	No RBCs	No RBCs	No RBCs	0.43U M-02	0.43U M-02
2,4,5-TP (Silvex)	No RBCs	No RBCs	No RBCs	No RBCs	No RBCs	No RBCs	0.43U M-02	0.43U M-02
Alachlor	No RBCs	No RBCs	No RBCs	No RBCs	No RBCs	No RBCs	0.43U M-02	0.43U M-02
Dicamba	No RBCs	No RBCs	No RBCs	No RBCs	No RBCs	No RBCs	0.43U M-02	0.43U M-02
Dichloroprop	No RBCs	No RBCs	No RBCs	No RBCs	No RBCs	No RBCs	0.43U M-02	0.43U M-02
Glifosab	No RBCs	No RBCs	No RBCs	No RBCs	No RBCs	No RBCs	0.43U M-02	0.43U M-02
2-Methyl-4-chlorophenoxyacetic acid (MCPA)	410	130	3,700	NV	NV	0.61	65U M-02	64U M-02
Methylchlorophenoxypropionic acid (MCPP)	No RBCs	No RBCs	No RBCs	No RBCs	No RBCs	No RBCs	65U M-02	64U M-02
Pentachlorophenol	4	34	860	NV	NV	0.17	0.43U M-02	0.43U M-02
Picloram	No RBCs	No RBCs	No RBCs	No RBCs	No RBCs	No RBCs	0.43U M-02	0.43U M-02

**Notes:**

Analytical data in bold font indicates that the value exceeds the laboratory reporting limits.

Analytical data highlighted in yellow indicates the value exceeded a generic RBC.

**Data Qualifiers:**

U - The analyte was analyzed for but was not detected above the analytical laboratory's method reporting limit.

M-02 - Due to the nature of matrix interferences, sample was diluted prior to preparation. The MDL and MRL were raised due to the dilution.

**Footnotes:**

(a) Risk-Based Concentrations are referenced from the November 1, 2015 update to the DEQ's Risk-Based Decision Making for the Remediation of Petroleum-Contaminated Sites guidance document dated September 2003.

(b) This pathway is applicable anytime someone is likely to come into contact with contaminated soil. For the occupational scenario, exposure to contaminated soils should be considered for all contaminants found in the top three feet of soil.

(c) This pathway is applicable whenever vadose zone soils are contaminated with volatile compounds.

(d) This pathway is applicable whenever vadose zone contamination is found overlying an aquifer that is currently used or is reasonably likely to be used in the future.

**Symbols/Acronyms:**

bfc - below fill contact

DEQ - Department of Environmental Quality

NV - The chemical is considered "nonvolatile" for the purposes of the exposure calculations.



**DRAFT Table 4**  
**Soil Samples Analytical Results - Organophosphorus Pesticides**  
**Supplemental Due Diligence Orchards Investigation**  
**2376 South Pacific Highway, Medford, Oregon**  
**Coquille Economic Development Corporation**

Parameter	DEQ Risk-Based Concentrations for Soil (a)						Test Pit Soil Samples	
	Ingestion, Dermal Contact and Inhalation (b)			Volatilization to Outdoor Air (c)	Vapor Intrusion into Buildings	Leaching to Groundwater (d)	TP1-0-1 Northwest (0-1 ft bfc)	TP2-0-1 Southeast (0-1 ft bfc)
	Occupational	Construction Worker	Excavation Worker	Occupational	Occupational	Occupational	10/22/2015	10/22/2015
<b>Organophosphorus Pesticides (mg/Kg)</b>								
<b>USEPA 8141A</b>								
Azinphos	No RBCs	No RBCs	No RBCs	No RBCs	No RBCs	No RBCs	0.54U M-02	0.51U M-02
Bolstar	No RBCs	No RBCs	No RBCs	No RBCs	No RBCs	No RBCs	0.54U M-02	0.51U M-02
Chlorpyrifos	No RBCs	No RBCs	No RBCs	No RBCs	No RBCs	No RBCs	0.54U M-02	0.51U M-02
Doumaphos	No RBCs	No RBCs	No RBCs	No RBCs	No RBCs	No RBCs	0.54U M-02	0.51U M-02
Demeton-o	No RBCs	No RBCs	No RBCs	No RBCs	No RBCs	No RBCs	0.54U M-02	0.51U M-02
Demeton-s	No RBCs	No RBCs	No RBCs	No RBCs	No RBCs	No RBCs	0.54U M-02	0.51U M-02
Diazinon	No RBCs	No RBCs	No RBCs	No RBCs	No RBCs	No RBCs	0.54U M-02	0.51U M-02
Dichlorvos	No RBCs	No RBCs	No RBCs	No RBCs	No RBCs	No RBCs	0.54U M-02	0.51U M-02
Disulfoton	No RBCs	No RBCs	No RBCs	No RBCs	No RBCs	No RBCs	0.54U M-02	0.51U M-02
Ethoprop	No RBCs	No RBCs	No RBCs	No RBCs	No RBCs	No RBCs	0.54U M-02	0.51U M-02
Fensulfathon	No RBCs	No RBCs	No RBCs	No RBCs	No RBCs	No RBCs	0.54U M-02	0.51U M-02
Fenthion	No RBCs	No RBCs	No RBCs	No RBCs	No RBCs	No RBCs	0.54U M-02	0.51U M-02
Merphos	No RBCs	No RBCs	No RBCs	No RBCs	No RBCs	No RBCs	0.54U M-02	0.51U M-02
Mevinphos	No RBCs	No RBCs	No RBCs	No RBCs	No RBCs	No RBCs	0.54U M-02	0.51U M-02
Naled	No RBCs	No RBCs	No RBCs	No RBCs	No RBCs	No RBCs	0.54U M-02	0.51U M-02
Methyl parathion	No RBCs	No RBCs	No RBCs	No RBCs	No RBCs	No RBCs	0.54U M-02	0.51U M-02
Phorate	No RBCs	No RBCs	No RBCs	No RBCs	No RBCs	No RBCs	0.54U M-02	0.51U M-02
Ronnel	No RBCs	No RBCs	No RBCs	No RBCs	No RBCs	No RBCs	0.54U M-02	0.51U M-02
Sitrophenos	No RBCs	No RBCs	No RBCs	No RBCs	No RBCs	No RBCs	0.54U M-02	0.51U M-02
Tekuthion (Prothufos)	No RBCs	No RBCs	No RBCs	No RBCs	No RBCs	No RBCs	0.54U M-02	0.51U M-02
Tri-nitrophenate	No RBCs	No RBCs	No RBCs	No RBCs	No RBCs	No RBCs	0.54U M-02	0.51U M-02
Malathion	No RBCs	No RBCs	No RBCs	No RBCs	No RBCs	No RBCs	0.54U M-02	0.51U M-02
Thionazin	No RBCs	No RBCs	No RBCs	No RBCs	No RBCs	No RBCs	0.54U M-02	0.51U M-02
Dimethoate	No RBCs	No RBCs	No RBCs	No RBCs	No RBCs	No RBCs	0.54U M-02	0.51U M-02
Ethyl parathion	No RBCs	No RBCs	No RBCs	No RBCs	No RBCs	No RBCs	0.54U M-02	0.51U M-02

**Notes:**

Analytical data in bold font indicates that the value exceeds the laboratory reporting limits.

Analytical data highlighted in yellow indicates the value exceeded a generic RBC.

**Data Qualifiers:**

U - The analyte was analyzed for but was not detected above the analytical laboratory's method reporting limit.

M-02 - Due to the nature of matrix interferences, sample was diluted prior to preparation. The MDL and MRL were raised due to the dilution.

**Footnotes:**

(a) Risk-Based Concentrations are referenced from the November 1, 2015 update to the DEQ's Risk-Based Decision Making for the Remediation of Petroleum-Contaminated Sites guidance document dated September 2003.

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(c) This pathway is applicable whenever vadose zone soils are contaminated with volatile compounds.

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**Symbols/Acronyms:**

bfc - below fill contact

DEQ - Department of Environmental Quality

NV - The chemical is considered "nonvolatile" for the purposes of the exposure calculations.

## **LIMITATIONS**

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The purpose of an environmental assessment is to reasonably evaluate the potential for or actual impact of past practices on a given site area. In performing an environmental assessment, it is understood that a balance must be struck between a reasonable inquiry into the environmental issues and an exhaustive analysis of each conceivable issue of potential concern. This environmental assessment contains professional opinions as to the environmental issues of concern and/or additional actions, which may be addressed to the property. In rendering its professional opinion, we warrant that services provided hereunder were performed, within the limits described, consistent with current generally accepted environmental consulting principles and practices. No other warranty, express or implied, is made. The following paragraphs discuss the assumptions and parameters under which such an opinion is rendered.

No investigation is thorough enough to exclude the presence of hazardous materials at a given site. If hazardous conditions have not been identified during the assessment, such a finding should not therefore be construed as a guarantee of the absence of such materials on the site, but rather as the result of the services performed within the scope, limitations, and cost of the work performed.

Any opinions or recommendations presented apply to site conditions existing when services were performed. We are unable to report on or accurately predict events that may change the site conditions after the described services are performed, whether occurring naturally or caused by external forces. We assume no responsibility for conditions we were not authorized to investigate, or conditions not generally recognized as environmentally unacceptable when services were performed.

Environmental conditions may exist at the site that cannot be identified by visual observation. Where the scope of services was limited to observations made during site reconnaissance, interviews, review of readily available reports and literature or any combination, any conclusions or recommendations or both are necessarily based in part on information supplied by others, the accuracy or sufficiency of which we may not have independently reviewed.

Where subsurface work was performed, our professional opinions are based in part on interpretation of data from discrete sampling locations that may not represent actual conditions at unsampled locations.

Except where there is express concern of our client, or where specific environmental contaminants have been previously reported by others, naturally occurring toxic substances, potential environmental contaminants inside buildings, or contaminant concentrations that are not of current environmental concern may not be reflected in this document.

We are not responsible for any potential impact of changes in applicable environmental standards, practices, or regulations following performance of services, on the conclusions or recommendations, or both, of the study.

Services hereunder were performed consistent with our agreement and understanding with, and solely for the use of, our client. Opinions and recommendations are intended for the client, purpose, site, location, time frame, and project parameters indicated. We are not responsible for subsequent separation, detachment, or partial use of this document. Any reliance on this report by a third party shall be at such party's sole risk.